

Application No.: 09/331729

Docket No.: 05587-00343-US

AMENDMENTS TO THE CLAIMS

1-34. (Cancelled)

35. (Previously presented) A toner for developing an electrostatically charged image, the toner comprising

(a) a binder resin comprised of at least one polyolefin resin having a cyclic structure, wherein the polyolefin resin having a cyclic structure comprises:

(i) a first resin or a first resin fraction with a number average molecular weight (Mn), as measured by GPC, of less than 7,500, and

(ii) a second resin or a second resin fraction with a number average molecular weight (Mn) of 7,500 or more, Mw of 15,000 or more, a heat distortion temperature as measured by the DIN 53461-B method of 70 °C or higher and an intrinsic viscosity of 0.25dl/g or more;

a colorant;

a function imparting agent; and

a charge control agent and

wherein said first resin or said first resin fraction and said second resin or said second resin fraction must be present and said second resin or second resin fraction is contained in a proportion of less than 50% by weight based on the entire binder resin.

36. (Previously presented) The toner for developing an electrostatically charged image as claimed in claim 35, wherein the binder resin consists of 1 to 100 parts by weight of the polyolefin resin having a cyclic structure, and 99 to 0 parts by weight of a resin selected from the group consisting of

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a polyester resin,
 an epoxy resin,
 a polyolefin resin,
 a vinyl acetate resin,
 a vinyl acetate copolymer resin,
 an acrylate resin,
 a styrene-acrylate resin and
 mixtures of (a) -(g).

37. (Cancelled)

38. (Previously presented) The toner for developing an electrostatically charged image as claimed in claim 35, wherein the polyolefin resin having a cyclic structure has at least one polar functional group selected from the group consisting of a carboxyl group, a hydroxyl group and an amino group.

39. (Previously presented) The toner for developing an electrostatically charged image as claimed in claim 35, wherein the polyolefin resin having a cyclic structure has at least one carboxyl group introduced therein having uniformly dispersed therein fine particles of a metal thereby forming an ionomer having crosslinked structure.

40. (Cancelled)

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41. (Previously presented) The toner for developing an electrostatically charged image as claimed in claim 35, wherein the polyolefin resin having a cyclic structure has a crosslinked structure.
42. (Previously presented) The toner for developing an electrostatically charged image as claimed in claim 41, wherein the polyolefin resin having a cyclic structure has a structure crosslinked by a diene wherein the crosslinked structure is obtained by the reaction of
(a) a diene monomer
with (b) an acyclic olefin and (c) a cycloolefin.
43. (Previously presented) The toner for developing an electrostatically charged image as claimed in claim 42, wherein the diene monomer is selected from the group consisting of norbornadiene and cyclohexadiene.
44. (Previously presented) The toner for developing an electrostatically charged image as claimed in claim 35, wherein the imparting agent is at least one polar wax.
45. (Previously presented) The toner for developing an electrostatically charged image as claimed in claim 44, wherein said at least one polar wax is selected from the group consisting of amide wax, carnauba wax, higher fatty acids and esters thereof, higher fatty acid metallic soaps, partially saponified higher fatty acid esters and higher aliphatic alcohols.

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46. (Previously presented) The toner for developing an electrostatically charged image as claimed in claim 35, wherein at least one nonpolar wax is used as the function imparting agent.

47. (Previously presented) The toner for developing an electrostatically charged image as claimed in claim 46, wherein said at least one nonpolar wax is selected from the group consisting of polyolefin wax and paraffin wax.

48. (Previously presented) A toner for developing an electrostatically charged image, the toner comprising

(a) a binder resin comprised of at least one polyolefin resin having a cyclic structure comprising at least three different resins or resin fractions having molecular weight ranges expressed by number average molecular weight (Mn), as measured by GPC,

(i) of less than 7500 which is a first resin or first resin fraction,

(ii) 7500 or more but less than 25,000, Mw of 15,000 or more, and an intrinsic viscosity of 0.25dl/g or more which is a second resin or second resin fraction, and

(iii) 25,000 or more, Mw of 15,000 or more, and an intrinsic viscosity of 0.25dl/g or more which is also part of the third resin or the third resin fraction,

and wherein said first resin or said first resin fraction and said second resin or said second resin fraction and the third resin or third resin fraction must be present and said second resin and third resin or second resin fraction and third resin fraction are contained in a proportion of less than 50% by weight based on the entire binder resin,

a colorant;

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a function imparting agent; and
a charge control agent.

49. (Previously presented) A toner for developing an electrostatically charged image, the toner comprising:

(a) a binder resin comprised of at least one polyolefin resin having a cyclic structure, wherein the polyolefin resin having a cyclic structure comprises:

(i) a first resin or a first resin fraction with a number average molecular weight (M_n), as measured by GPC, of less than 7,500, and

optionally (ii) a second resin or a second resin fraction with a number average molecular weight (M_n) of 7,500 or more, M_w of 15,000 or more, a heat distortion temperature as measured by the DIN 53461-B method of 70 °C or higher and an intrinsic viscosity of 0.25dl/g or more;

(b) a colorant;

(c) a function imparting agent; and

(d) a charge control agent,

wherein said second resin or said second resin fraction is contained in a proportion of less than 50% by weight based on the entire binder resin.

50. (Previously presented) The toner for developing an electrostatically charged image as claimed in claim 49, wherein said second resin or said second resin fraction is present and said polyolefin resin having a cyclic structure is a copolymer of an acyclic olefin and a cycloolefin compound having at least one double bond.

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51. (Previously presented) The toner for developing an electrostatically charged image as claimed in claim 50, wherein the acyclic olefin is present and is an alpha-olefin selected from the group consisting of ethylene, propylene and butylene.

52-54. (Canceled)

55. (Previously presented) The toner as claimed in claim 35, wherein said second resin or said second resin fraction is present in amount from 18.8% to less than 50% by weight based on the entire binder resin.

56-58. (Canceled)